

LISTING OF CLAIMS:

The following listing of claims replaces all other prior versions and listings of claims in the application. Additions are indicated by underlining and deletions are listed by ~~striketrough~~.

1. (Previously presented) A method for evolving a protein encoded by a DNA substrate molecule comprising:
 - (a) digesting at least a first and second DNA substrate molecule, wherein the at least a first and second substrate molecules differ from each other in at least one nucleotide, with a restriction endonuclease;
 - (b) ligating the mixture to generate a library of recombinant DNA molecules;
 - (c) screening or selecting the products of (b) for a desired property; and
 - (d) recovering a recombinant DNA substrate molecule encoding an evolved protein.
2. (Previously presented) The method of claim 1, wherein the restriction endonuclease generates non-palindromic ends at cleavage sites.
3. (Previously presented) The method of claim 1, wherein the substrate molecules have been engineered to contain at least one recognition site for a restriction endonuclease having non-palindromic ends at cleavage sites.
4. (Previously presented) The method of claim 1, wherein (a) - (d) are repeated.
5. (Previously presented) The method of claim 1, wherein the DNA substrate molecule comprises a gene cluster.
6. (Previously presented) The method of claim 1, wherein at least one restriction endonuclease fragment from a DNA substrate molecule is isolated and subjected to mutagenesis to generate a library of mutant fragments.

7. (Previously presented) The method of step 6, wherein the library of mutant fragments is used in the ligation of (b).
8. (Previously presented) The method of claim 7, wherein the DNA substrate molecule encodes all or part of a protein selected from Table I.
9. (Previously presented) The method of claim 6, wherein mutagenesis comprises recursive sequence recombination.
10. (Previously presented) The method of claim 1, wherein the products of (d) are subjected to mutagenesis.
11. (Previously presented) The method of claim 10, wherein mutagenesis comprises recursive sequence recombination.
12. (Previously presented) The method of claim 1, wherein the products of (d) are used as a DNA substrate molecule in (b).
13. (Previously presented) The method of claim 10, wherein the products of claim 10 are used in (d).
14. (Previously presented) The method of claim 1, wherein the recombinant DNA substrate molecule of (d) comprises a library of recombinant DNA substrate molecules.
15. (Canceled).